for the interest he has taken and the assistance he has so kindly given in the work.

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EXPLANATION OF PLATE XI.— Figs. 1–7, pistil of Erythronium Americanum; 5–7, pistil of E. albidum; 8, E. Americanum showing different length stamens; 9, corm of E. albidum; 10, stigma of E. Americanum, *a*, line of measurement, *d*, contracted part; 11, upper surface of stigma of E. albidum, *bc*, line of measurement; 12, cross-section of ovary of E. mesochoreum; 13, 14, cross-sections of ovary of E. albidum.

Noteworthy anatomical and physiological researches.

Anatomy of the tubers of Equisetum.

Leclerc du Sablon, describing the anatomy of these organs of *Equisetum*,[1] shows that they represent short branches reduced to a single internode. These tubers are situated upon the rhizome; they are able, when detached, to develop independent individuals. They are pear-shaped in *Equisetum Telmateja*, occurring in clusters of two or three at a node of the rhizome. A transverse section shows a very thin cuticle which has no incrustation of silica, and a starch-bearing parenchyma just inside the epidermis. This parenchyma entirely surrounds the central part of the tuber including the ring of fibro-vascular bundles. Each bundle is again surrounded by an endodermis, the radial walls of which show the spots named after Caspary. There is no lacune to be observed in the hadrome, which, in most cases is characteristic of the oldest part of the stem above ground in the *Equisetaceæ*; and the vessels are present in a still larger number in the tuber. These vessels are not arranged in any order, but scattered and intermixed with parenchymatic cells. The largest ones are not always situated in the outer part of the entire bundle, but are irregularly mixed with the smaller ones, and do not show the shape of a *V*, which characterizes the bundles of the stem. Towards the apex the bundles increase in number and unite to form a crown which corresponds to the terminal node of the tuber. Such anastomosing bundles are not known elsewhere in the internodes of the rhizomes of *Equisetaceæ*.

The most important character in the structure of these tubers, and by which they differ from the rhizome, are: The division of the endodermis into special endodermes, surround-

[1] Sur les tubercules des Equisétacées: Revue générale de Botanique, (1892.) no. 39.

ing each bundle; the absence of lacunes in the hadrome; and the irregular arrangement of the vessels.

In contrast to *Equisetum Telmateja*, mentioned above, the tubers of *E. sylvaticum* are ovoid and arranged so as to form a rosary; but the structure agrees very well with that of the preceding species, except that some layers of the bark-parenchyma are strongly thickened so as to form a kind of protecting sheath around the central part of the tuber, which peculiarity is, also, to be observed in the rhizome of this species.—THEO. HOLM.

Yeast fungi.

Professor Emil Christian Hansen upholds[2] the correctness of statements concerning endogenous spore-formation in the cells of Saccharomyces, against the opposition of Moeller, to whose paper the February GAZETTE called attention. Hansen gives a short review of spore-formation in this division of fungi, the conclusion of which is that the spores possess a membrane and germinating power. Very likely Moeller has confounded oil-drops and similar formations often found in old cells, with the true spores. It is incomprehensible that anybody can doubt the formation of endogenous spores in Saccharomyces. But of course we have to follow strictly the rules given by Hansen.[3]

Prof. Groenlund[4] has established four new yeast fungi, namely, *Saccharomyces Ilicis I* and *II* (both found on *Ilex*), *S. Aquifolii*, and *Torula Novæ-Carlsbergiæ*. The three Saccharomyces are found producing spores and the new species are based upon the relation of this phenomenon to temperature. The Torula gives beer a very unpleasant and bitter taste.—J. CHRISTIAN BAY.

Soluble pentoses in plants.

De Chalmot[5] gives in his studies on the pentoses in the plants a very important contribution to the chemistry of assimilation. The so-called "pentosanes" of Tollens[6] are widely distributed in the plants. These give pentoses by hydrolysis, and two sugars, arabinose and xylose, have been

[2] Centralbl. f. Bakteriol. und Parasitenkunde, XIII, (1893) 16.
[3] Meddelelser fra Carlsberg Laboratoriet, II, (1886) 152–167; III, (1891) 53–78.
[4] Zeitschr. f. d. gesammte Brauwesen, no. 30–32, 1892.
[5] Reprint from the American Chemical Journal, XV, no. 1. (1893.)
[6] Die landwirtschaftlichen Versuchsstationen, XXXIX, 401 (1891), esp. pp. 425–430.